TEXTILE READER'S GUIDE

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One of the important increases in the use of synthetic fibers has occurred in the nylon dress and other similar fabrics. Though the nylon production continues to grow, it cannot keep pace with the demand. Increase in synthetic generally is apparent, with fiber synthetics outgrowing filament synthetics. These statements are true for America where blends continue in popularity. In Britain, however, blends of wool and synthetics have decreased largely because of the lower price for wool. Many more 100% wool

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fabrics are now being produced there.

Artificial Fibers A 2

Crimping fibers

Anon. B. P. 682,263, Alexander Smith and Sons Carpet Co.; *J. Soc. of Dyers and Cols. 69,* 36 (1953).

Natural or man-made fibers are permanently crimped by gripping them between conveyors, which discharge and force the fibers into a zone against a mass of fibers compressed under pressure. The mass of fibers so crimped is kept compressed under constant pressure and treated with an agent to set the crimp.

Greater perfection is aim of synthetics

Anon. *America's Textile Reporter 67,* 49, 191 (February 19, 1953).

With the introduction of the newer synthetics accompanied by vast promotion campaigns, the industry has settled down to developing and improving the qualities claimed for the fibers. This not only has been evident in Orlon, Dacron, and other new fibers, but also in the rayons.

Minute structure of viscose fibers

Anon. *N. Iwanow and J. Meybeck. Bull. Inst. Text. Fr.,* p. 51-73 (October, 1952), *in French; Brit. Cotton Ind. Res. Assoc. 33,* 153 (February 28, 1953).

A microscopical method for the observation of dye penetration into fibers is described. Short lengths of fiber are cut and dye is given access to both ends of the fiber lengths. The fiber lengths are then rotated through 90° by a special device to enable them to be observed at right angles to the fiber axis. A series of photographs show how the dye penetrates into the core of the fiber.

Synthetic research provides new superiority for cotton

Anon. *America's Textile Reporter 67,* 11, 12 (February 26, 1953).

New developments in cotton research are being produced by the same scientists who created the synthetic fibers, and these developments may overshadow those in the synthetics themselves, according to W. A. L. Sibley, president of ACMI. Mr. Sibley's optimism for cotton and the entire cotton industry economy was based upon the following reasons:

1. Raw cotton fiber refinements and improvements in quality. Scientists may develop a superior cotton fiber through similar means used for synthetics.

2. Normal operating volumes are now in force in the mills, inventories being down to about three weeks output.

3. Increased cotton consumption has upped production and renewed forward buying.

4. Retail sales have increased.

The microstructure of Rayon and staple fiber

E. Elod and H. Rauch. *Melliand Textilber. 34,* 1-12 (1953); *in German.*

The "peeling method" developed by the Elod characterized by time-controlled, topochemical acetylation of cellulose hydrate fibers makes it possible to define the radical microstructure of such fibers. Microphotographic pictures show the great regularity of acetylation. Further photos of cross sections of swollen fibers, some of them reproduced as phase contrast picture and others as silhouettes with oblique illumination, disclose further details of microstructure. Defects connected with the incorporation of artificial resin are discussed.

Tips for processing "Acrilan"

Graeme G. Whytlaw. *Textile Industries 117,* 153, 217-219 (February, 1953).

Article outlines some of the procedures necessary to run Acrilan satisfactorily on various systems. Because of its bulk, settings of machines must be altered and some of the products lightened. A few dyeing suggestions are also included, and the fact mentioned that a satisfactory warp size has not yet been found.

You must allow for bulk in designing for new fibers

J. B. Dickson. *Textile World 103,* 135, 137, 254 (March, 1953).

Manufacturers of new fibers sometimes say the material is "bulky" and that mills should "make allowances" for extra bulk in processing. Fabric designers need to know how much allowance and the answer must be in a form easy to handle in computations. Article is an explanation of an all-fiber system which can be used to compute the changes necessary when going from one fiber to another.

What's good and bad about synthetic fibers

John H. Dillon. *Textile World 103,* 98-100, 215-224 (March, 1953).

Article is an evaluation of the major synthetic fibers, with the weak as well as the strong points being considered. Included are Glass, Cellulosic fibers, Protein fibers and true synthetics.

YARN PRODUCTION B

Fiber Preparation B 1

Cleaner cotton with less beating

Anon. *Textile Industries 117*, 95, 191 (February, 1953).

Cotton can now be cleaned almost entirely with air, and with practically no beating, by utilizing Super-Jet Cleaners in tandem. Beater sections in the tandem arrangement are more to prepare the stock for the Super-Jet than to clean the stock. The second Super-Jet will take out from 65 to 100% as much waste as the first. The cotton is delivered in a thoroughly opened condition, with no sign of curling or stringing. Because of the exceptionally large amount of air handled, the Super-Jet cleaners are good dust extractors, and cleaner picker room and card room result.

How we make uniform picker laps

L. C. Sheehan. *Textile World 103*, 118-120, 206, 208 (March, 1953).

A well-planned program aimed at improving picker-lap uniformity has enabled one mill to reduce rejected laps on nine pickers from 62 in the first six months of 1951 to 14 in the first six months of 1952. This reduction was made at low cost by applying sound quality control procedures and by following up with several picker improvements. Among the steps taken were (1) tightened standards, (2) coefficient of variation adopted as measure, (3) new controls, (4) new filters and overflow boxes installed, (5) pneumatic rack controls, (6) oiled lap pins, (7) lap-meter scales calibrated, and (8) cleaning emphasized.

Carding and Combing B 2

Can conversion at Avondale costs only $11.25 per card

Thomas B. Winston. *Textile World 103*, 97, 182, 184 (March, 1953).

Avondale's Catherine plant, Sylacauga, Ala., timed conversion of card cans with the ordering of new 14-inch cans that were needed anyway. Grinders made the conversions, and the machine shop build outer rings for the turntables for $2.40 each. Four new gears cost $8.85 per coiler. Result: a complete conversion for $11.25 per card.

Garnetted Nylon-wool blends

William J. Crofts. *Textile Industries 117*, 91-93 (March, 1953).

Garnetted nylon, because of its great tensile strength, is one of the most valuable of the synthetics for woolen blends. Article discusses the use of nylon in blends and gives a number of important facts about methods and processes.

Inequalities of thickness in sheets and yarns

Anon. (Robbins Mills); B. P. 682,549, *J. Soc. of Dyers and Cols. 69*, 31 (March, 1953).

Sheet material or one of several parallel strands are passed through the apparatus. A projection appearing on the surface of the web or strand completes an electric circuit, which either stops the machine or warns the operator.

Through-floor stripper system—the answer to an installation problem

Staff. *Textile Industries 117*, 110-111 (March, 1953).

All the pipes for the vacuum stripping installation at the Mallison Braided Cord Co., Athens, Ga., a division of Puritan Cordage Mills, have been run through the floor to collection pipes in the basement. Advantages claimed are less pipe and easier overhead cleaning in the card room.

Wool carders acclaim quality control

Staff. *Textile Industries 117*, 155, 157, 159 February, 1953).

Article outlines the advantages to be gained from a well planned quality control system in wool carding. Some of the items which should be included in the recorded data are mentioned and typical tests enumerated. A rapid-reading digest of a discussion pertaining to the Bigelow Compensator and other items of current interest is also included.

Spinning B 4

Better method for handling yarn

Staff. *Textile Industries 117*, 135 (February, 1953).

Article describes a new type of mill-made truck and special racks which hold cheeses for transportation. Cheeses cannot be dropped and are not handled individually.

Control your vibration on high-speed twister spindles

Hans H. Wormser. *Textile World 103*, 125, 208 (March, 1953).

Most vibration on an uptwister comes from unbalanced bobbins. Three ways of attacking

this problem are; 1) use balanced bobbins, 2) use spindles that allow some unbalance, 3) use special mounts that isolate vibration. A discussion of the causes and cures for spindle vibration is given in the article.

Ends-down studies pinpoint worsted spinning troubles

M. J. Koroskys. *Textile World 103,* 114, 290, 292 (March, 1953).

If you know why ends come down, you can locate the source of machine trouble or recognize the trouble as a bad blend. Here is a simple study that can serve as a general guide to the breakdown and analysis of ends-down data.

Spun yarn effect with filament

Anon. *Textile Industries 117,* 143-47 (February, 1953).

Filament yarns have been made to behave like spun yarns by the Textralizing process. The elimination of spinning synthetic staples for certain constructions has become a real possibility. Some possible improvements are: Rain resistance of filament fabrics; improved warmth of coatings and suitings; greater bulk and abrasion resistance; and improved pile fabrics.

The mill of today—36—The ringrail

R. Z. Walker. *Textile Bulletin 79,* 63 (January, 1953).

The importance of newer types of ringrail construction is emphasized in the article describing the function of the ringrail, aligning and leveling the ringrail, the function of lifter rods, the use of the new general type of bushing for lifter rods, the balancing of the ringrail, and the four principal functions of the separators.

"Z" twist to "S" twist

Anon. *Textile Age 17,* 42-42 (February, 1953).

See front section.

Winding and Spooling B 5

Drawing frame for multifilament yarns

A. Friedrich. *Melliand Textilber. 34,* 17-19 (1953); *in German.*

The author investigates the mechanical process of drawing multifilament yarns composed of chemically produced filaments spun by passing through nozzles. The thread, which runs continously over rollers, is subject to the laws of rope friction, which the author discusses, giving several examples of such equipment. With many synthetics, the initial tension must be kept extremely low because of the very low stretching limit of the freshly spun thread. In such cases, it has proved particularly suitable to use two-roller drawing frames with axes inclined towards each other, over whose rollers the fiber strand passes in several layers. The new construction of a drawing frame of this type, with a kinematically perfect drive of the two axes, is described.

How to improve winding of yarn-grading boards

Eugene F. Wallace. *Textile World 103,* 111 (March, 1953).

Article describes a modification to a conventional winder for yarn-grading boards which changes machine to a motor drive. Results are said to be constant speed and better spacing of yarn, giving more uniformly wound boards which can be evaluated more rapidly and accurately.

Slub catcher

Edward J. Abbott (Abbott Worsted Mills, Inc.); U. S. P. 2,630,265 (March 3, 1953).

A slub catcher comprises opposed elements which define a yarn passage there-between and periodically acting means which slide one of the elements sufficiently to expose one side of the passage so that the slub catcher may be cleaned.

Traverse device

M. Abbe (Societe Industrielle pour la Rayonne "S. I. P. R. A."); U. S. P. 2, 629, 560 (February 24, 1953).

A winding machine for winding yarns into bobbins with conical ends wherein a mechanism which comprises no member in frictional engagement with the wound mass of yarn controls the stroke of the thread guide.

Unwinding wound packages from the inside

Fred C. Wedler (American Viscose Corp.); U. S. P. 2,630,380 (March 3, 1953).

Apparatus for holding a wound package to be unwound from the center comprises a hollow wall container having perforations in its inner wall adjacent the package and means for applying suction to the space within the hollow wall to hold the cake in position.

Yarn packaging device

H. L. Ayala (Celanese Corp. of America); U. S. P. 2,629,559 (February 24, 1953).

Apparatus for winding yarns into packages

comprises a traverse mechanism capable of ready and easy adjustment so that bobbins of various dimensions may be accomodated on the winding device for winding yarn pacakages of the desired shape.

Yarn tensioning device

E. J. Heizer (Specialties Dev. Corp.); U. S. P. 2, 629,561 (February 24, 1953).

A yarn tensioning device comprises discs which receive the yarn there between, a spring for urging the discs together, a control arm operable by the yarn and means responsive thereto to move one of the discs away from the other.

Yarn Application B 9

Cord coating and uniting apparatus

Emile V. Bitterli and Max Forrer (Compagnie Generale d'Electricite); U. S. P. 2,628,655 (February 17, 1953).

The invention provides a method and apparatus for orientating a plurality of threads in parallel relation and binding them in that relation by the application of a resinous material thereto and thereafter reeling and drying them.

Lubricant for acetate rayon

Anon. B. P. 681,033 (Celanese Corp of America; *J. Soc. of Dyers and Cols. 69,* 32 (March, 1953).

A lubricant for acetate rayon is compounded from (a) a mineral oil, (b) an aryl phosphate, (c) a long-chain fatty acid, (d) a hydroxy-alkylamine, and (e) the constituents of a mixture obtained by desalting and dehydrating the alkali-neutralized reaction product of oleum with a mixture of a long-chain fatty acid, a vegetable oil and a miner oil.

Mechanics of bent yarns

Stanley Backer. *Bibl. of Technical Reports 19,* 93, B. P. 111080 (March 13, 1953).

It is the purpose of this report to formalize the elements of bent yarn geometry through careful analysis of an idealized yarn structure. The products of such an analysis are expressed in mathematical relationships presented in a form most useful to the textile materials engineer. To encourage use of the results by practical designers, an effort has been made to present complete graphical conversions from practical textile data to the dimensionless parameters utilized for maximum generality in the analysis.

Stabilizing viscose rayon threads

Anon. B. P. 683,203 (U. S. Rubber Co.); *Skinner's Silk and Rayon Record 27,* 198 (March, 1953).

A large number of organic amines have been tested for prevention of deterioration of rayon tire cords which arises from heat ageing, and are listed in order of their effectiveness. It is definitely stated that no relationships exist between the efficiencies of these amines as cellulose heat-resisting chemicals and their efficiencies as rubber anti-oxidants and vulcanising accelerators. These amines may be applied to the regenerated cellulose-threads at three main stages (1) by outside treatment of a fully formed tire, (2) by treating the threads before they are used in tire manufacture, or (3) by dispersing the amine in the latex bath which is used to coat the threads.

Thread-treating machine

Anon. B. P. 681,547 (Dan River Mills); *J. Soc. of Dyers and Cols. 69,* 31 (March, 1953).

In a machine for dipping, stretching, compressing, drying, and packing threads, particularly those formed of short fiber, e.g. cotton, spun rayon, flax, and jute, penetration of the impregnating agent and compression of the treated thread are simultaneously aided. The compression device is such that high tensile strength and low gauge of treated thread are obtained without the need for extreme tension hitherto.

Treatment of fibrous materials

Anon. B. P. 680,337-8 (January 10, 1952); British Celanese Ltd.; *Rubber Abs. 31,* 40 (March, 1953).

The process is for the treatment of fibrous materials to facilitate the subsequent formation of strong bonds with rubber during the vulcanization of the rubber. The process comprises impregnating the fibrous material with a water-insoluble, alcoholsoluble synthetic resin, such as phenolformaldehyde, in solution, under non-alkaline conditions, the alcoholic solution being free from any excess formaldehyde. In the second patent, the use of paracetaldehyde and phenol, condensed to a permanently fusible resin, is also claimed.

Treatment of thread

Courtaulds. B. P. 681,401, *J. Soc. of Dyers and Cols. 69,* 31 (March, 1953).

An apparatus in which thread is passed in a number of spaced convolutions over and along a pair of rollers arranged with their axes out of paralled, the convolutions can be differentially

spaced in zones along the rollers, thus reducing the total length of the rollers needed for adequate treatment with a number of liquids.

Treatment of yarn

Ed. J. Heizer (Specialties Dev. Corp.) U. S. P. 2,627,480 (February 3, 1953).

The method of treating yarn in twisted condition comprises engaging the yarn at spaced apart point while moving the yarn in a lengthwise direction, supplying liquid impregnant to the yarn and rolling the engaged section to aid impregnation.

Yarn treatment

Harley Y. Jennings (Dan River Mills, Inc.); U. S. P. 2, 627,103 (February 3, 1953).

The method of treating moving yarn to increase its strength comprises impregnating the yarn with a bonding agent, applying tension thereto, gripping the thread at spaced points, stretching the thread, and setting the bonding agent by heat application.

Yarn treating apparatus

Edward A. Wentz (Specialties Dev. Corp.); U. S. P. 2,628,405 (February 17, 1953).

Apparatus for increasing yarn tensile strength comprises a first and second pull roll rotating at different speeds wherein the rolls have V-shaped grooves for fractionally engaging the yarn to prevent slippage.

FABRIC PRODUCTION C

Yarn Preparation C 1

Georgia supervisors discuss slasher operation and maintenance

Harwell Howard. *Textile Bulletin 79*, 75 (January, 1953).

A thorough discussion of slashing which touched on such subjects as slasher squeeze rolls and their maintenance, use of lease strings, selvage control, use of wet split, homogenizers, preparation of thin-boiling starches, control and maintenance, constituted the first part of last fall's meeting of the Textile Operating Executives of Georgia. The warp preparation discussion was led by George McMillan, superintendent of the 1,343-loom plant of Crystal Springs Bleachery at Chickamuga.

Homogenized size for spun synthetics saves $8,000 a yr. in slashing

James H. Kennedy. *Textile World 103*, 122, 186, 188 (March, 1953).

A change from British gums to homogenized pearl starch for sizing synthetic warps have allowed Marion Mfg. Co., Marion, N. C. to pay the $4,000 cost of the homogenizer out of material savings over a period of six months. The viscosity and pickup are the same, but preparation time is cut about 35 minutes, cleaning of kettles, lines, and size box is easier, and congealing and shedding are considerably reduced.

Size for yarns

Anon. B. P. 682,386. *J. Soc. of Dyers and Cols. 69*, 32 (1953).

A complex formed between gelatin or other colloidal protein and an anion soap or an organic sulphonic acid containing a highly hydrophobic radical dissolved in an organic solvent is an excellent size for yarns, particularly those of nylon or other strongly hydrophobic fiber.

Slasher tender can see if speed is right

Staff. *Textile Industries 117*, 118-19 (March, 1953).

An instrument which indicates the proper slasher speed to get the desired moisture content in the warp has been developed by Strandberg Engineering Laboratories, in conjunction with Cone Mills Corp. The instrument is electronic, and indicates speeds as being normal, slow, or fast. It is simple and accurate, and checking circuits are included. The instruments now in use have been operating satisfactorily for about one year at Cone Mills' White Oak Plant.

Weaving C 2

Apprasing loom operation by research methods

Victor Sepavich. *Textile Bulletin 79*, 69 (January, 1953).

For years the 4 x 1 box loom has been the standard loom in the production of most woolen and worsted fabrics. With the advent of bleached yarns, more and more emphasis has been placed by the textile industry on filling mixing in fabrics made with a single color or type of filling. At the same time emphasis has been placed on low production costs for this type of fabric. For these reasons the standard 4 x 1 box loom was found to be both adequate and inadequate—adequate from the standpoint of the technical operation of filling mixing but inadequate from the standpoint of economy of operation. Briefly, it was too much loom for the job to be done.

Market surveys and discussions with leading

manufacturers of woolens, worsted, and blended fabrics, showed that a new loom particularly suited to this class of goods should be made available. By confining its use to a single color of filling, many simplifications of mechanism were made possible. To insure that this machine would be capable of operating at higher speeds with greater productivity, require less maintenance, and greatly increase the number of looms per weaver that could be operated, a rather comprehensive engineering evaluation program had to be carried out. Those mechanisms that were limited in their speed of operation had to be redesigned and changed; while those mechanisms that were retained and were not found to limit the speed of operation had to be carefully investigated and made as simple as possible to insure freedom from maintenance. Obviously, a program of this type requires an expenditure of a tremendous amount of research facilities that have to be, of necessity, spread over a fairly long period of time.

Beattie benefits from 3 handling ideas

Anon. *Textile World 103*, 115 (March, 1953).

Article describes way in which Beattie Mfg. Co., Little Falls, N. J., cut inventory manpower 65% and inventory time 88% by (1) using electric truck to handle and transport 9-ft. and 12-ft. wool warp beams, (2) storing yarn in wire baskets which can be handled and stacked by fork trucks, (3) using electric and gasoline fork trucks to handle large carpet rolls.

Here's the way to stop transfer filling breaks

Richard B. Pressley. *Textile World 103*, 108-9, 204 (March, 1953).

Loom-stoppage checks made by the laboratories of several leading weaving mills show that more loom stops are caused by broken filling on the transfer than by any other cause. Often, transfer breaks account for more than 50% of all loom stops. The following steps should be taken to help eliminate this fault: (1) Set the battery or magazine in line with the shuttle, (2) Box the shuttle to the transfer hammer, (3) Adjust the thread guide to the shuttle, (4) Select the shuttle that is correct for the filling, and (5) Loom fixers and batteryhands should be made responsible.

Jig for gluing loom brake corks

R. J. Tucker, Jr. *Textile Industries 117*, 109 (March, 1953).

Article describes a jig which can be used to glue cork to loom brake shoes. Jig employs a discarded loom brake wheel, and the accompanying illustrations show apparatus and its use.

STANDARD FINISHING D

Developments in cotton bleaching (British viewpoint)

Anon. *Textile Manufacturer 79*, 40 (January, 1953).

See front section.

Fabric expanders

F. Slater. B. P. 681,846, *J. Soc. of Dyers and Cols. 69*, 31 (March, 1953).

An expander roller has at each end a pinion which engages in a rack at the side of the jig, enabling the roller to be moved into pressure contact with the fabric at either side of the jig.

DYEING AND PRINTING E

Application of acoustic waves to dyeing

P. Alexander and G. A. Meek. *Melliand Textilber. 34*, 57-59 (March, 1953); in German.

Following on the claims that the rate and quality of dyeing could be improved by irradiation with high intensity sound waves systematic experiments using 250 kc and 17.3 kc vibrations were carried out. Although the improvements claimed were found, it was established that all the effects of the ultrasonics could be produced by conventional methods of agitation of the dye bath. In this system, therefore, ultrasonics act only as a fairly effective type of stirring. Ultrasonics bring about with insoluble dispersed types of dyes probably by increasing the state of subdivision. No evidence could be found that they break up the micelles in which high molecular weight dyes exist in solution.

Dyeing cellulose esters and ethers with vat dyes

Anon. B. P. 681,754 (Celanese Corp of America); *J. Soc. of Dyers and Cols. 69*, 36 (March, 1953).

A wide range of vat dyes can be applied to cellulose esters and ethers by mechanically impregnating them with an aqueous dispersion of free leuco compound of the dye, drying, then impregnating with an aqueous solution of a formaldehyde-sulphoxylate containing an alkali metal carbonate, steaming and finally oxidizing. Dyeing of good fastness to washing, light, and rubbering are obtained on acetate rayon with little saponification of the fibers.

Fastness factors in wool dyeing

Anon. *Textile Manufacturer 79*, 34 (January, 1953).

The artcle was compiled with the object of estimating to some exten the influence of such factors as (a) dye-bath control (b) condition of fiber or fabric and (c) selection of dyestuffs for particular purposes. In addition, some account is given of various factors which affect fastness in particular cases.

Jig

Anon. B. P. 682,025 (Celanese Corp. of America); *J. Soc. of Dyers and Cols. 69*, 31 (March, 1953).

Each roller is hydraulically braked, the brakes being automatically controlled by a sensing element whose position is determined by the tension in the fabric, so that the tension is kept constant.

Migration of dyestuff in drying of fabrics

H. Haas. *Melliand Textilber. 34*, 67-8 (March, 1953); *in German.*

After impregnating on the padding mangle, the dyestuff or synthetic resin liquor is evenly dispersed in the fabric. Adjustment of the air conditions in the drier permits influencing of the pigment dispersion in the fabric layer. A high rate of air-flow and low saturation cause the pigment to remain in the interior. The temperature of the air exerts no influence upon the migration of dyestuff. Infra-red and cylinder driers cause a pronounced migration of the pigments towards the heated surface. High-frequency drying, and low drying at room temperature result in a perfectly uniform dispersion in the fabric layer, but they are uneconomical.

Ready reference chart for continuous dyeing procedure

Anon. *Textile Industries 117*, 94-95 (March, 1953).

Article gives speed, efficiency, types of fibers and other pertinent data about the pad-steam, Thermosol, Williams-hot oil, Standfast, Bond machine, and Uxbridge high temperature dyeing methods of continuous dyeing.

Save steps when matching colors

Staff. *Textile Industries 117*, 120 (March, 1953).

Article describes a department-store-type pneumatic dispatcher for conveying dyed samples between the drug room and color-matching laboratory at Phoenix Hosiery Co. Milwaukee, Wis. Adjustments in dye baths can be made more quickly, and a yearly saving of about $6,000 is claimed.

Stripping dyes from wool

Dr. D. Frishman and Dr. M. Harris. *Textile Manufacturer 79*, 37 (January, 1953).

Stripping procedure should represent a judicious balance of color removal in conjunction with quality of the wool, and the cost necessary to achieve these ends. Reducing agents have been used as good strippers for fifty years. With the development of more stable dye molecules and chrome colors, it is necessary to have better stripping agents. The use of a cross-linking agent is said to have good results.

Textile industry neglects radio-isotopic benefits

Anon. *America's Textile Reporter 67*, 21, 44 (March 12, 1953).

Other industries have made use of radio isotopes for several years, but the textile industry is said to have largely ignored tracer techniques. Some of the problems aided by such techniques are: solving the problem of dye migration in multi-color printing; determining the effectiveness of lubricants and wetting and soiling agents in processing fibers and fabrics; and the study of the permanence of finishing agents.

Winding yarns for package dyeing

H. Marsden. *Textile Manufacturer 79*, 3 (January, 1953).

Yarn packages for dyeing have to satisfy exacting dyeing requirements and ultimately yarn must wind-off completely from dyed packages without tangling. This end-use requirement dominates all winding of dye packages because it is obviously purposeless to dye packages successfully which cannot be wound-off satisfactorily. During winding, due provision has to be made for the subsequent effects of wet processes on dye packages.

SPECIAL FINISHING F

Avcoset stabilization of rayon fabrics

I. H. Welch & Jackson A. Woodruff. *Textile Bulletin 79*, 82 (January, 1953).

Stabilization of rayon fabrics (or shrinkage control, as it is often called) means the retention of useful dimensions during normal wearing and cleaning. For some time, there have been two different finishing approaches towards obtaining

various degrees of stabilization of rayon: (1) The use of alkaline or aldehyde chemical treatment of rayon fabrics combined with mechanical relazation to give permnence of stability. (II) The use of resin treatment of fabric combined with mechanical relazation resulting in stabilization of widely varying durability. At the moment, it can be definitely stated that this second approach has often failed to meet requirements. Data was presented later in the paper to show what limitations cause these failures. The first approach of aldehyde treatment followed by relaxation or compressive shrinkage has just recently become a practical and commercial realization.

Careful dyeing, finishing, and testing reduce rejects of auto fabrics

S. E. Mirgh. *Textile World 103,* 131, 133 (March, 1953).

Careful dyestuff selection and altered finishing practices coupled with a few simple laboratory tests, brought quality of auto-body fabrics up to an acceptable value after the amount of rejects increased. The tests were not standard, but they served the mill's purpose of forestalling rejections. Some of the tests and procedures outlined are wetfastness, lightfastness, stretch and set, abrasion, and shrinkage.

Coating metallic objects

Alfred P. Knapp (Knapp Mills, Inc.) ; U. S. P. 2,628,393 (Fabruary 17, 1953).

The method of coating a metallic object comprises applying a coating material within an enclosing rim formed on the top surface of the object to be coated and heating the object by floating it on a pool of molten material.

Fabric setting

Anon. B. P. 686,451 (British Nylon Spinners Ltd) ; (January 28, 1953).

Process of setting a fabric comprising linear polyamide yarns consists of brifinging the fabric into contact with hot chemically inert gases while mechanically controlling the dimensions of the fabric.

Fabric treatment

Leslie L. Walmsley and Raymond E. Smith (American Viscose Corp.) ; U. S. P. 2,628,151 (February 10, 1953).

The process simultaneously stabilizes a regenerated cellulose material against progressive shrinkage and applies thereto a vat dye.

Non-slip finish

Anon. B. P. 681,802. Monsanto. *J. Soc. of Dyers and Cols. 69,* 37 (March, 1953).

Textiles or other cellulosic materials are given a non-slip finish without change in handle by impregnating them with an aqueous solution of a cationic surface-active agent and then with aqueous colloidal silica.

Stabilization of rayon fabrics by the Avcoset method

J. A. Woodruff and I. H. Welch. *Textile Industries 117,* 128-133 (March, 1953).

Article is a description of the Avcoset method of controlling shrinkage of rayon fabrics. Some of the advantages claimed are; shrinkage control throughout life of fabric, Treated fabrics do not retain chlorine, treated fabrics have superior retention of tensile strength, and improved and new end uses for rayon fabrics may be found. The history of Avcoset and typical formulas and methods are described.

Suction hydroextractor

Anon. B. P. 681,909-10. *J. Soc. of Dyers and Cols. 69,* 31 (March, 1953).

Increase in temperature of the fabric at the point of suction results in more water being removed. It may be achieved by applying radiant heat to the fabric immediately before the point of suction. The savings in subsequent drying are greater than the cost of the radiant heating.

Three stabilizing finishes detailed

Anon. *America's Textile Reporter 67,* 17, 34 (March 12, 1953).

Aquex, Avcoset, and X-2 processes were described at the New York AATT meeting as three processes which put rayon in the "truly washable" class in wearing apparel, resulting also in prolongment of fabric life rather than any shortening of life. These statements were made by Arthur R. Wachter, of American Viscose Corporation.

The three processes give rayon permanent shrinkage control, color fastness, without affinity for chlorine. Less than 2 percent residual is obtained by Aquex, it was said, meaning that after fifty launderings there is no progressive increase in the dimensional change figure. Similar results were said to be obtained from Avcoset and X-2.

Water repellent compositions

Larry Q. Green (E. I. duPont de Nemours and Co.) ; U. S. P. 2,628,170-1 (February 10, 1953).

Water-repellent compositions for textile fibers comprise anhydrous mixtures of a hydrocarbon wax and an organic titanium compound.

Wrinkle tester simulates "Clenched Fist" technique

Anon. *Textile Industries 117,* 149 (March, 1953).

The Celanese Wrinkle Tester is a precision elaboration of the "clenched-fist" technique for subjectively determining a fabric's crease recovery. The recently devised instrument devlops random wrinkle patterns on large samples by alternately subjecting them to vacuum and pressure while they are sealed inside rubber diaphragms. Geometric paterns may be recorded by tracing surface contours, or photographs might be taken.

TESTING AND MEASUREMENT G

Instruments and Instrumentation G 2

A simple cotton fiber testing laboratory for mills

S. C. Mayne, Jr., Jim N. Little, and Earl E. Berkley. *Textile Industries 117,* 122-126 (March, 1953).

Equipment and techniques to provide a choice of instruments and methods most suitable to individual needs in testing fibers are described in this article. Among the instruments discussed are the Micronaire, the Colorimeter, the Pressley Strength Tester, the Shirley Analyzer, and the Suter-Webb Sorter. A brief discussion of the capabilities and limitations of each instrument is given.

Application of high compression stresses to textile fibers. Parts I and II

Warren F. Busse. *Textile Res. J. 23,* 77-84, 84-90 (March, 1953).

In part I a test for subjecting textile fibers to high compression is described. The test is applied mainly to cotton and the theory of fiber physics involved in the deformations and recoveries are given. Part II is extended to a large number of textile fiber types and a number of physical and chemical treatments of these fibers. Emphasis is given to mechanical and physical examinations of these phenomena and to the usefullness of the results.

Causticaire—new method for finding cotton maturity and fineness

Anon. *Textile World 103,* 128-29 (March, 1953).

The Causticaire method stands a good chance of replacing the standard method as soon as procedures are perfected. It predicts spinning performance better and speeds up this phase of fiber testing. A single scale is used for all types of cotton, and the relative importance of maturity and fineness is changed. Article is a discussion of the method and its results as contained in a USDA report.

Fabric surface: thickness-pressure relationships

H. Bogaty, N. R. S. Hollies, J. C. Hintermaier, M. Harris. *Textile Res. J. 23,* 108-114 (March, 1953).

The thickness of fabrics at various pressures and the definition of the thickness—pressure function over a fairly wide range of pressures are determined. Such a functional relationship would be useful in representing the whole thickness—pressure curve quickly by means of the constants of the equation, and if the form of the equation were chosen appropriately the constants might be expected to be descriptive of the "character" of the cloth. The possibility of expressing the relationship between thickness and pressure as a hyperbolic function is considered.

Felting in laundering of wool blends

H. Bogaty, A. M. Sookne, L. I. Weiner and M. Harris. *Textile Res. J. 23,* 114-18 (March, 1953).

The shrinkage in laundering of knitted samples containing wool blended with varying amounts of nylon, vicara and viscose was studied. The nylon acts as a true diluent. The addition of viscose tends to increase the feltability in the construction studied, even when half the fiber is viscose. The vicara blends are intermediate in behavior.

Packaging hygrometers

Kenneth C. Coon. *Modern Packaging 26,* 119-20, 177 (March, 1953).

Two types of hygometers for measuring moisture inside small low-cost packages have been developed and tested. One hygrometer has eight sensing elements which cover the entire humidity range. The other, a probe unit, has a single sensing element which is sensitive to low relative humidities only. The hygrometers are described and the relative merits of each type are presented and discussed.

Research and quality control pay off

M. Earl Heard. *Textile Industries 117,* 97-108 (March, 1953).

Article discusses research as it is usually applied to textiles, and relates it to quality control. A discussion of uniformity from picker lap through drawing is included, with many charts and graphs to illustrate the effect of non-uniformity and doublings on sliver, rovings and yarns.

Streakmeter

H. F. Humes, E. H. Olson and C. E. Reese. *Textile Res. J. 23*, 123-29 (March, 1953).

An instrument called the "Streakmeter" has been developed to locate and characterize individual warp streaks in plain woven fabrics. The Streakmeter measures and records photo-electrically the relative intensities of light reflectances from each warp yarn and from each space between consecutive warp yarns. Visible streaks were shown to originate both from variable-appearing yarns and from variable-appearing spaced between yarns.

Streamline your tire cord tests

Robert C. Crawford. *Mod. Text. Mag. 34*, No. 1, 48, 66 (1953); *Brit. Cotton Ind. Res. Assoc. 33*, 154 (February 28, 1953).

A procedure for carrying out tensile strength tests in a rapid and reproducible manner has been developed. Two modifications have been made to the testing apparatus; (1) pneumatically-operated clamps, and (2) a tension-measuring device with an attached electrical contact which causes air pressure to be applied to the clamps when the correct yarn tension is reached. An efficient layout for drying oven, testing machines, and adding machines is also described.

The "Projectina" yarn instrument

Anon. *Fibers 14*, 45-6 (March, 1953).

The Swiss optical instrument firm of Hans Hock, Zurich, has introduced a new cloth and yarn examining instrument, the "Projectina" in which the sample is projected on to a screen with magnifications of 10, 20, or 50 times. One of the important features of this new device is that the sample is projected either with the light passing through it and silhouetting it on to the screen or by surface light. In this way it is possible to inspect samples of even the densest fabrics through which light cannot pass. The screen is graduated in inches so that there is an immediate check of ends and picks per inch. This magnification gives a detailed picture of the sample and, so far clearly and unmistabably any uneven

picking "reediness" or yarn variation in the fabric.

Thickness-pressure measurements and the nature of a fabric surface

H. Bogaty, N. R. S. Hollies, J. C. Hintermaier and M. Harris. *ASTM Bull. 188*, 46-47 (February, 1953).

An equation is proposed which is useful for describing the thickness-pressure relationship for a variety of fabrics over a range of pressures from 0.002 to 2.0 psi, if the equation "constants" one emperically defined in a given manner. The magnitude of one of the parameters in the equation, appears to be useful for characterizing the surface hairiness of the fabric in agreement with subjective visual and tactile judgements.

This live-wire quality program improved Lane's denims

Richard B. Pressley. *Tex. World 103*, 103, 234, 236, 238 (March, 1953).

Quality and production at Lane Cotton Mills have been improved by a program that includes a daily conference between manager and employees, three daily quality meetings of department heads, and a man on each shift who heads off seconds. By improving quality and using looms more cloth per week on 938 fewer looms than it did three years ago.

Weight measurement of yarn irregularity

B. K. Chakrabarti. *Textile Res. J. 23*, 99-107 (March, 1953).

The coefficient of variation of certain characteristics in a yarn, such as the weight in constant short lengths can be quite accurately estimated by any one of three short-cut methods described herein—the mean deviation method, the mean range method, and the probit method. The mean itself, by which this standard deviation is devided to get the coefficient of variation, is obtained readily by weighing all the samples together. The standard errors of the coefficient of variation estimated by these short-cut methods are derived, and the efficiencies of the methods are compared with that of the direct root-mean-square deviation method, showing the corresponding sample sizes for the same efficiency.

TEXTILE MILLS H

A farm program pays off in better community relations

Mildred B. Andrews. *Textile World 103*, 143, 184, 186 (March, 1953).

Pastures and dairy herds may seem remote from the normal business of textile mills, but in a region where business has a direct interest in a prosperous agriculture, a progressive company has set an example to its farm neighbors that has been profitable for all concerned. Article tells of the active interest Avondale Mills has taken in the agriculture of Alabama.

Alabama mill men discuss service department problems

Staff. *Textile Industries 117*, 161, 165, 167 (February, 1953).

Alabama Textile Operating Executives met November 22, 1952, in Thach Hall at Alabama Polytechnic Institute to discuss mechanical, electrical, maintenance, and supply problems. Some of the items discussed are: Pipe fittings for steam lines, Water in compressed air lines, Sealing floors, Removing oil from floors, Circuit breakers, Equipment records, NEMA starter enclosures, Spare parts inventory, and Handling lubricants and empty drums. A schedule of maintenance and cleaning for air change systems and humidifiers is given in a table in the article.

Automatic pH control in effluent treatment at a woll mill

R. Wilkinson. *Textile Manufacturer 79*, 47 (January, 1953).

See front section.

5 electrical problems and how to solve them

T. O. Sills. *Textile World 103*, 106-107 (March, 1953).

The five important electrical troubles enumerated are grounds, loose connections, switches and starters, motor maintenance and flexible connections. Grounds can be kept in control by use of ground indicators and locaters, and the others can be minimized by following a careful maintenance procedure. Ways of combatting all of the difficulties are outlined in the article.

430 Tags or labels printed per minute

Anon. *Modern Materials Handling 7*, 148 (February, 1953).

See front section.

Gas-fired boiler pays its way at Rome Hosiery

E. Dalton White. *Textile World 103*, 124, 210, 212 (March, 1953).

A reduction of 25 to 30% in cost of generating steam and electricity has been attributed to replacing a coal-fired boiler with a gas-and-oil boiler. Fuel and ash handling problems with the coal boiler as well as uncertain supply caused the change. Operation of the gas boiler is cleaner and much more efficient. A description of the installation and maintenance procedures is included in the article.

How a mill was insulated without a production shutdown

Anon. *Textile Age 17*, 14, (February, 1953).

See front section.

How to establish a policy—and make it work

Frank T. De Vyver. *Textile World 103*, 141, 188-194 (March, 1953).

Policy is not only top management's job; it is also the responsibility of supervisors. Each person should have a thorough understanding of the policy, know why it was established, and help carry it out to the best of his ability. Article defines policy, and tells how to institue a good policy and make it work.

Let's get up to date on Sequestering agents

J. V. Boone. *Textile World 103*, 104-105 (March, 1953).

Article defines sequestering agents and gives many of their uses in the textile industry. They are said to be effective in reducing corrosion and oxidation in machinery and as an aid to better bleaching and dyeing.

Make a heat survey to stop hidden losses

Leo Walter. *Textile World 103*, 112-13, 194, 197, 198, 200 (March, 1953).

Here is an outline that points out sources of steam and heat losses and gives suggestions for their correction. All phases of textile operation are covered, from space heating to processing. The emphasis is on old-plant improvements rather than new-plant upkeep. Some of the sub-headings are: (1) Washing, bleaching, dyeing, (2) Recover waste heat, (3) Check for controlability, (4) Reduce peak loads, (5) Reorganize for steam economy, (6) Instruments insure quality, and (7) Control the load and humidity.

Modern production methods

Anon. *Textile Industries 117*, 99-134 (February, 1953).

70 case history reports telling how mills: save labor, reduce waste, simplify jobs, improve quality, and increase production. These are a number of short, to-the-point reports of the results mills

are getting when using modern equipment and production methods. Essentially, the stories tell how mills invest in equipment and then use it to the best advantage. All phases of the industry are covered in one or more of the reports.

Modernize—or move over

Anon. *America's Textile Reporter 67*, 15, 31, 207, 209 (February 19, 1953).

See front section.

New machinery replacement formula can save industry millions yearly

Anon. *America's Textile Reporter 67*, 19 (February 26, 1953).

A formula has been developed to show the cost of obsolescence, and indirectly to provide a practical means to show the value of replacing machinery. The formula is called the MAPI formula and was developed by the Machinery and Allied Products Institute of Chicago. The formula also shows how much a mill will lose in any given period by not replacing machinery. The system of analyzing replacements has been used effectively by Dan River Mills and has been condensed into a manual called the MAPI Replacement Manual, by George Terbough. Inquiries concerning this formula should be directed to *America's Textile Reporter.*

New output plans aid textile mills

Herbert Koshetz. *New York Times,* (March 25, 1953).

See front section.

Opportunities for tax reduction

John W. Hanes. *Textile Industries 117*, 136-141 (February, 1953).

Article is third in a series on business and government. This number deals with the opportunities for tax reduction and more equitable distribution of the tax burden.

Price of survival in a danger-filled world

A. Lee M. Wiggins. *Textile Industries 117*, 112-115 (March, 1953).

Article is number four of a series on problems of business and government. The author states that national danger may be nearer and greater than we think, and directs attention to complacency as one of the greatest dangers. Five areas of economic weakness are enumerated. They are: (1) Inflation-deflation, (2) The national budget, (3) Threats to corporations, (4) Social-Economic programs, and (5) Industrial warfare.

Repair conveyor belts immediately

Anon. *Textile Industries 117*, 159 (February, 1953).

In order to get the maximum service life out of conveyor belting, repair all belt damage as soon as it is discovered, Newell Perry, a belting engineer of Thermoid Co., recommends. Damages which can occur and the repair methods are outlined in the article.

Reducing accident costs through safe working conditions

Anon. *Textile Age 17*, 44 (February, 1953).

In every plant where accidents have been reduced to a minimum, management has shown the workers that it is wholeheartedly behind the safety program and has assumed active, forceful, and continuous leadership in its establishment and operation. Management has convinced the employees that it is sincere in its efforts to protect them from accidents and that it is willing to spend time and money to that end. One of the best ways for management to gain worker interest in safety is by eliminating those hazards over which it has direct control. The realization that management is doing its part in providing safe working conditions will make the workers more receptive to a safety program. They will be more willing to do their part in maintaining safe working conditions and in supporting all phases of the safety program. By starting work in the following areas, management can show the sincerity of its efforts to reduce accidents and can lay the ground-work for future safety activities.

Safety

Thomas B. Winston. *Textile World 103*, 89-96 (March, 1953).

Accidents have been on the increase since the defense program started in 1950. The textile industry has been spared most of the conversion pains that caused this increase. Now is the time for the textile industry to show itself to be the safety leader of American industry.

To study what makes a safety-minded mill, three mills were selected on the basis of their showing in the Alabama Safety Contest. These are Tallassee Mills and Russell Mills, Spinning and Weaving, and The Linen Thread Co., Spinning. The safety activities at these mills demonstrated that there is no formula for safety consciousness: each mill has to adapt safety techniques to its own operations. Methods and ideas from all three mills are included in the article.

So you don't want a union?

Staff. *Textile Industries 117*, 89-90 (March, 1953).

Article emphasizes the fact that sympathetic and alert supervision and management is the best weapon to use in combatting unionization. Many mill men think that a mill must be unionized to operate efficiently, but author asserts that this is not the case, and outlines 8 factors which must be watched to maintain good employee relations.

Time and cost comparisons of bale handling methods

Jo Brice Wilmeth and Charles D. Bolt. *Modern Material Handling 8*, 127, 129, 131, 132, 133 (February, 1953).

See front section.

To be a group leader—learn the various approaches

Auten Uris. *Textile World 103*, 126-127 (March, 1953).

The qualities of a good leader can be learned, but they must be first developed out on the job as leadership challenges arise. With practice, judgment, and patience any man can become a better leader. Article discusses the different types of leadership and how they can be applied to different individuals and situations.

Trends in textile mill modernization

L. M. Geraghty. *Textile Age 17*, 16, (February, 1953).

Much has been accomplished since the close of World War II in modernizing textile plants and this has in most cases, been prompted by the necessity of reducing high production costs or facing eventual liquidation. The need for modernization has, of course, been more common among the New England mills. There have, however, been cases where Southern Mills have been compelled to re-equip and modernize. It has been estimated that approximately one-half a billion dollars was spent or allocated for plant expansion by the textile industry in this country for 1952, the major portion of which was spent by cotton and the synthetic-fiber processing mills.

We save $12,150 a year by purifying our water

M. R. Klarquist. *Textile World 103*, 121, 206 (March, 1953).

After 60% of the rejected goods were traced to bad water, a set of four filters and two water softeners were installed, with the result that dye lots seldom have to be rerun and $12,150 is saved per year on chemicals, dyestuffs, soaps and boiler upkeep costs.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Detection of oxycellulose and hydrocellulose in regenerated cellulose

Johannes Rau. *Textil-Praxis 7*, No. 11, 902-3 (1952), *in German; Brit. Cotton Ind. Res. Assoc. 33*, 110 (March, 1953).

Functional groups formed by oxidation and/or hydrolytic reactions are discussed and the possibility of detecting the occurrence of either of these reactions, individually or simultaneously, by means of known derivative colorations, is considered. The colorations included are the reduction of silver, mercury or gold salts by means of aldehyde groups; the condensation or addition reactions of aldehyde groups with phenylhydrazine to form phenylhydrazones, and the formation of diazonium salts.

Cellulose crystallinity and iodine absorption

K. Schwertassek and K. Hajek. *Faserforsch u. Textiltech. 3*, No. 9, 349-54 (1952), *in German; Brit. Cotton Ind. Res. Assoc. 33*, 73 (January 31, 1953).

A graph of the relationship between the crystallinity in a cellulosic fiber and the iodine adsorption value is used to indicate some conclusions as to changes which occur in crystallinity. The changes occur when viscose rayon is treated with 6% NaOH, during kier-boiling of cotton and during the chemical determination of the cellulose content of cotton.

Effect of high temperatures on cellulose fibers

T. Finklestein, W. Kargin and S. Rogovin. *Textil-Praxis 7*, No. 8, 614-44 (1952); *Brit. Cotton Ind. Res. Assoc. 33*, 73 (January 31, 1953).

Investigation has shown that on heating cellulose hydrate fibers in high vacuum up to a temperature of 200° C. for 2 hrs., no significant lowering of the D.P. nor of the tensile strength of the fibers occurs. On increasing the temperature still further, however, a degradation of the cellulose macromolecule commences with accompanying decrease in D.P. and deterioration in physico-mechanical properties. Parallel investigations into the changes in properties of viscose and cellulose triacetate fibers showed that the lowering of the D.P. of these fibers at temperature over 200° C. are approximately similar.

Effect of surfactants on soil redeposition

Jack Compton and W. J. Hart. *Ind. and Eng.*

Chem. 45, 597, 602 (March, 1953).

The water-soluble anionic cellulose derivatives and polyvinyl alcohol were found to be excellent soil-suspending agents, both alone and in combination with other surface active substances (surfactants). The behavior of cellulose derivatives in this respect must arise from some factor inherent in the polymer structure, since similar starch derivatives show relatively low suspending power. All evidence obtained indicates that "suspending power" synergism or antagonism characterizing mixed surfactant systems is the resultant of the entire surfactant-soil-fiber system and can neither be derived nor predicted directly from the behavior of any single component or lesser group of components of the system. The mechanism of soil redeposition on fabrics is analyzed and its correlation with the suspending power of surfactants as defined by Bayley and Weatherburn is shown. A rapid quantitative method for the determination of suspending power was given and the behavior of a wide range of surfactant-soil-systems was studied.

Freezing point lowering and solubility curves of cellulose fibers

J. M. Preston and M. V. Nimkar. *Textile Res. J. 23,* 119-20 (March, 1953).

According to a current hypothesis, part of the water inbibed by fibers is considered to be present in a solution of the macromolecule of the non-crystalline regions cooling curve and solubility curves are presented for viscose, cotton and sucrose, the last for comparison purposes. There is a tendency for the approximately horizontal parts of the curve to become shorter, the lower the moisture content. It is concluded that, assuming the hypothesis to be correct, viscose has twice as much non-crystalline material as has cotton.

Hydration of various polymorphous forms of cellulose

G. Champetier and C. Legrand. *J. of Polymer Sci. 10,* 223-27 (February, 1953); *in French.*

X-ray diffraction experiments confirm the data obtained by the blotting or centrifuging method, concerning the action of water which penetrates at different degrees in the regions of cellulose. Different forms of cellulose are more or less easily accessible. X-rays only show variations of intensity for native cellulose, but the unit cells are changed for lattices II and III; the transformations are still deeper for cellulose III. X-ray diffraction does not permit determination of the stoichiometric ratios.

Hydrolysis of cellulose fibers

Alexander Meller. *J. of Polymer Science 10,* 213-222 (February, 1953).

The kinetics of the removal of the easily accessible fraction from cellulose fibers in acid hydrolysis are studied using data on loss in weight of hydrolysis of the cellulose samples. In the early stage of hydrolysis, the removal is practically a linear function of time and later appears to be controlled by "activated diffusion." The diffusion controlled hydrolytic removal of the readily accessible components from the fibers is small at 100° C., but increases with decreasing temperature. Possible explanations of the changing mechanism controlling the removal are discussed.

Light absorption of cellulose derivatives

E. Treiber and W. Felbinger. *Das Papier 7,* 13-17 (1953; *in German.*

In continuation of our investigations on the U V-absorption of cellulose derivatives, we examined cellulose, methyl- and carboxymethylcellulose as well as model compounds (e.g. cellobiose) and determined the selective and apparent absorption (Tyndall scattering). With cellobiose, cellulose, and methylcellulose, a very weak absorption at about 3500 mm -1 was found, which we suppose to be real. From this fact, interesting conclusions can be drawn as to the photolysis of cellulose.

TEXTILE EDUCATION AND RESEARCH J

Textile research achievements in 1952

J. B. Goldberg. *Textile Bulletin 79,* 49-58 (January, 1953).

See front section.

most interesting since it affords a means of

J. H. Andreen, J. W. Gibson and C. C. Wetmore. *Textile Res. J. 22,* 11-22 (1953).

Physiological factors such as body surface temperature, electrical conductivity of the skin, rate of sweating, total seat cost, and heart rate were measured as criteria for evaluating in warm and hot environments the comfort afforded human test subjects by textile apparel. To correlate the physiological parameters with individual impressions of comfort and to assess the contributing phychological factors, expressions of subjective opinion of the different fabrics were solicited.

ION exchange in water conditioning

J. R. Moreno and Henry M. Burlage. *Am. Profess. Pharmacist 18,* 783-9, 823-6 (1952); *Chem Abs. 47,* 802 (1952).

A review of the various methods of water conditioning with special emphasis on the use of ion-exchange resins. 22 references.

Rheology of high polymer solutions

Kurt Edelmann. *Faserforsch u. Textiltech. 3,* 344-349 (1952), *in German; Brit. Cotton Ind. Res. Assoc. 33,* 86 (January 31, 1953).

Flow curves, based on measurements made with the Umstatter structure viscometer, have been plotted for rayons, commercial cellulose and raw cottons dissolved as nitrates in butyl acetate. All derivatives exhibited structure viscosity. It is shown that the deflections of flow curves of all concentrations of a derivative lie on a line parallel to the abscissa, so that this critical velocity gradient appears to be independent of concentration. The higher the molecule weight, the closer this straight line is to the abscissa. It has also been found that in an homologous series the critical tangential pressure is independent of molecular weight.

Role of surface active agents in wetting

Fredericks M. Fowkes. *J. of Phys. Chem. 57,* 98-103 (1953).

A mechanism for the wetting of cotton by aqueous solutions of wetting agents is proposed which allows prediction of sinking times of cotton

yarn for a variety of wetting agents. The equations require data on the relation between concentration and surface tension of solutions of the wetting agent. Penetration of solutions of wetting agents into porous hydrophobic solids proceeds at a rate determined by the cosine of the contact angle of the advancing front on the cotton fibers. An equation derived can be used to predict sinking times in various wetting tests. Data obtained with Aerosol OT, Aerosol MA and Tergitol 4 illustrate this point. The relations of sinking time to diffusion and to surface tension may be used additively to predict rates of wetting for a wide variety of surface active agents.

Static electricity in textiles

G. W. Graham. *Textile Mercury 128,* 16, 19, 20, 23 (1953).

The largest part of the electrification is due to contact between fiber and metal. The main function of an anti-static agent is to form an electrostatic shield between fiber and metal in order to reduce or eliminate the contact potential between them. Surface active agents are effective as anti-static agents because they are oriented on the surface of the fiber thus forming a more effective electrostatic shield. Proposed in this paper is a method for the evaluation of anti-static agents and the importance of working out the entire curve between voltage and amount of agent is pointed out.

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